

**Product Information**

**Temperature Instrumentation**

**Safety Temperature Limiter STL50Ex**  
 (acc. to DIN EN 14597, SIL 2)



- Intrinsically safe input for use with temperature sensors in 0/20; 1/21; 2/22
- DIN EN14597 Safety Temperature Limiter  
 Operating modes STB, STW, ASTB (double fault)
- DIN EN 61508 certified, SIL2
- DIN EN ISO 13849 certified, PL d
- 1 Relay for safety-relevant temperature limit, forcibly guided
- 1 Relay for pre-alarm
- Analogue output 0/4... 20mA; 0/2... 10 VDC
- Memory function for error message
- Operator lock (password protection)
- Contact input for external reset
- 24V DC signal for external alarm message

**Characteristics**

The STL50Ex safety temperature limiter is used where ever thermal processes must be monitored and the system must be transferred into a safe operational state in case of fault. If the permissible temperature limit value is reached, or if a fault occurs within the permissible temperature range on the monitoring equipment (sensor open, sensor short-circuit, failure of a component part in the device, fault in the software, failure or inadmissible value of the supply voltage etc.), the STL50Ex switches off without delay. The alarm contact is activated, the LED ALARM on the front panel and the back-lighting of the display light up, and the error cause is indicated as plain text on the display. In addition, there is a 24 V DC signal present on the terminals 16-17 for an external alarm signal. Alternatively, the device can be reset using an external contact. In addition, the STL50Ex optionally has an configurable analog output with up or downscaling function, as well as a pre-contact.

**Description**

**Configuration**

The device is configured via front side buttons in connection with the graphic display.

**Operating modes**

The device can be used as:

STB → Maximum- or minimum-monitoring with hold. Reset possible after omission of the fault with the external or internal button.

ASTB → as before, but monitoring the exhaust gas temperature

STW → Maximum- or minimum-monitoring without hold.

Automatic reset after leaving the dangerous range.

Switching hysteresis always acts in the direction of safe range.

The last fault is stored as plain text and can be called up in the working level and deleted.

**Temperature sensor**

When using the device according to DIN EN14597, temperature sensors which are approved according to DIN EN14597 must be used!

**Technical data**

**Power supply**

- Supply voltage : 230 V AC ±10 %; 115 V AC ±10 %  
 24 V DC ±15 %
- Power consumption : < 4 VA
- Conformity : CE

**Ambient conditions**

- Operating temperature : -10..+55 °C
- Storage temperature : -30..+60 °C
- Relative humidity : < 95 %
- Condensation : not permitted, operation only in vibration less ambient

- DIN EN 14597 : Modes STB, STW, ASTB
- DIN EN 61508 : SIL2
- DIN EN ISO 13849 : PL d, Cat. 2
- EN IEC 60079 : II (1) G [Ex ia] IIC/IIB  
 III (1) D [Ex ia Da] IIIC

**Input**

- Pt100 : -100.0..+600.0 °C, 3-wire,  
 3-wire, max. line resistance 4 Ω  
 each line, sensor current<1 mA  
 (non self heating)

**Thermocouple**

- Type J : Fe-CuNi -100.0..+800.0°C
- Type K : NiCr-Ni -150..+1200 °C
- Type N : NiCrSi-NiSi -150..+1200°C
- Type S : Pt10Rh-Pt 0..1600 °C  
 cold junction compensation integrated

- Accuracy : <0.5 %, ±2 Digit
- Temperature coefficient : 0.01 %/K
- Display : graphic LCD-display 28 x 64 Pixel,  
 with white LCD-backlight

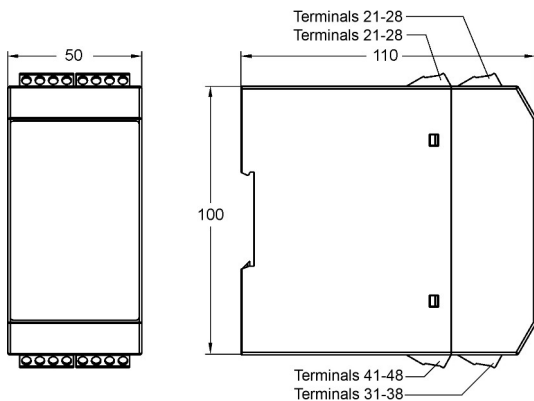
**Output**

- Relay : SPDT  
 <250 V AC <200 VA <2 A  
 cos Phi ≥0.7  
 <250 VDC <80 W <2 A,  
 internal fused 2 A (slow-blow)
- Pre-alarm relays : SPDT <250 V AC <500 VA <2 A  
 ohmic load;<30 VDC <60 W <2 A,

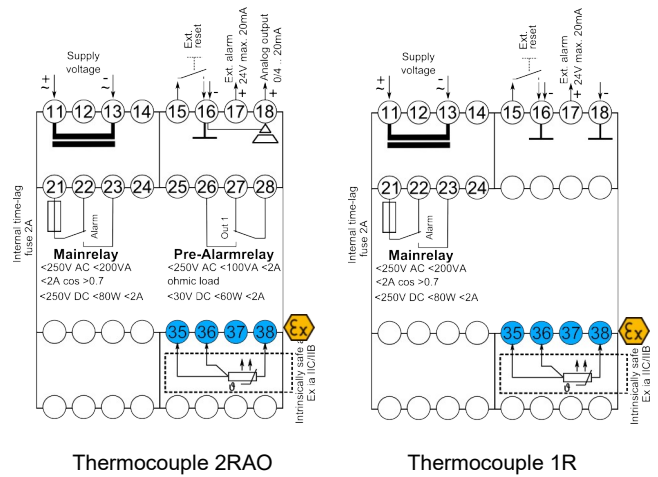
## Product Information

- Analogue output : 0/4 ... 20mA burden  $\leq 500\Omega$ ; 0/2..10V burden  $> 500\Omega$ , galvanically isolated  
 Output automatically changing (burdendependent)  
 Accuracy (analogue output) : 0,04 %; TK: 0,01% /K  
**Case** : Polyamide (PA) 6.6 , UL94V-0, TS35 acc. to DIN EN 60715  
 Weight : approx. 450 g  
 Connection : screw terminals 0.14..2.5 mm<sup>2</sup> (AWG 26 .. 14)  
 Protection class : IP20, DIN EN 60529, BGV A3

## Dimensions



## Temperature Instrumentation

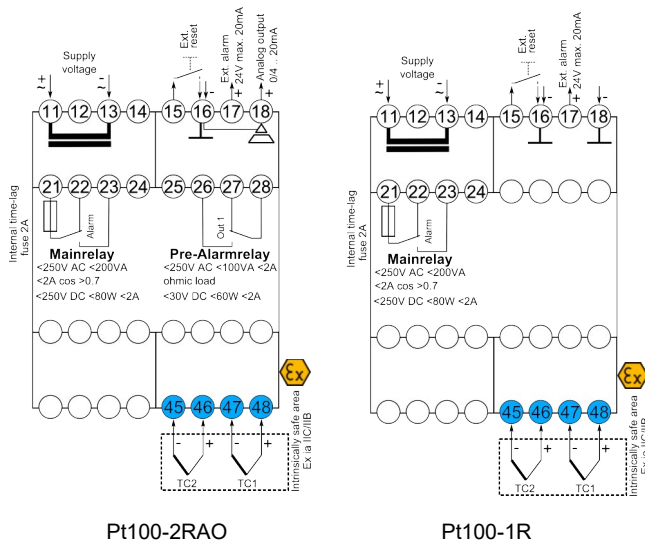


## Accessories

### Temperature sensor

- When using STL50Ex as safety limiter -or guard- according to EN14597, safety temperature sensors acc. to 14597 have to be used: See our products TR296/293, TC296/293
  - Temperature sensor for SIL applications: Temperature sensors without transducers are passive elements and not SIL-classified.
- All sensors of our portfolio can be used. PFD characteristics for resistance elements or thermocouples are to be found in the standard tables. Alternatively manufacturer declarations of evaluation electronics and sensors to the SIL level can be created on request.

## Connection diagrams



## Ordering code

STL50Ex -  -  -  -

1. Device type/input		
1	Pt100, 3-wire	-100.0..+600.0 °C
5	Thermocouple J (Fe-CuNi)      -100.0..+800.0 °C K (NiCr-Ni)      -150..+1200 °C N (NiCrSi-NiSi) -150..+1200 °C S (Pt10Rh-Pt)    0..1600 °C	
2. Output		
1R	1 alarm output relay	
2RAO	2 relay outputs + analog output	
3. Supply voltage		
0	230 V AC, $\pm 10\%$ 50-60 Hz	
1	115 V AC, $\pm 10\%$ 50-60 Hz	
5	24 V DC, $\pm 15\%$	
4. Options		
00	without option	